Docket No.: 63012A US
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:
Jeffrey J Wooster et al.

Application No.: 10/560,323 Confirmation No.: 4966

Filed: December 9, 2005 Art Unit: 1796

For: Film Layers made From Ethylene Polymer Blends Examiner: Nathan Nutter

# APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This brief is filed within two months of the May 26, 2009 filing of the Notice of Appeal.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

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## I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Dow Global Technologies Inc.

## II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are seven claims pending in application.

B. Current Status of Claims

1. Claims canceled: 2, 4, 11, 20

2. Claims withdrawn from consideration but not canceled: 5, 9-10, 12, 14-18, and 21-25

3. Claims pending: 1, 3, 6-8, 13 and 19

4. Claims allowed: none

5. Claims rejected: 1, 3, 6-8, 13 and 19

C. Claims on Appeal

The claims on appeal are claims 1, 3, 6-8, 13 and 19.

## IV. STATUS OF AMENDMENTS

Applicant did not file an amendment after Final Rejection.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

In the following summary of the claimed subject matter, the reference numbers in parentheses indicates a page number followed by a line number from the specification as filed (and as published in WO2004/111123) where the element is described. These numbers are provided for the aid of the Board to quickly identify relevant section of the specification, but should not be considered to be the sole source of support.

The invention as set forth in the claims under appeal relates to a film layer (13, 1-16) made from a polymer composition (2, 6) comprising a first component (A) together with a second component (B). The first component is a homogeneously branched ethylene/alpha olefin polymer (5, 1) and comprises 10-95 percent by weight of the polymer composition (2, 7). The homogeneously branched component is further characterized in terms of a density between 0.86 to 0.92 g/cm$^3$ (7, 6-11), molecular weight distribution between 1.8 and 2.8 (10, 1-4), melt index between 0.2 and 200 g/10 min(7, 16-24) and having substantially no high density fraction(5, 29-32). The second component is a heterogeneously branched ethylene polymer (10, 5) which comprises from 5 to 90 percent of the composition (2, 14) and is further characterized in terms of a density between 0.88 and 0.945 g/cm$^3$ (10, 7). The invention as set forth in claim 1 also requires the overall polymer composition to have a melt index between 0.5 g/10 minutes and 30 g/10 minutes (26, 1-2 (original claim 4)), and for the overall melt index to be lower than the melt index of component (A) (11, 1-4).

Further embodiments add that the film layer has a heat seal initiation temperature of 105°C or less (15, 31-32 (original claim 3)); that the homogeneously branched component is a copolymer of ethylene and a $C_3$-$C_{20}$ alpha olefin (6, 2-3); that the heterogeneously branched component is a copolymer of ethylene and a $C_3$-$C_{20}$ alpha olefin (10, 11) and particularly ethylene and 1-octene (26, 12-13 (original claim 8)); that the film layer as a whole has a density lower than the density of the heterogeneously branched component (27, 10-11 (original claim 13)); and that the overall composition comprises more than 40 percent by weight of the homogeneously branched component (27, 24-26 (original claim 19).

## VI. GROUNDS OF OBJECTION TO BE REVIEWED ON APPEAL

1) Whether claims 1, 3, 6-8, 13 and 19 would constitute obviousness-type double patenting over claims 1-9 of co-pending application No 10/541,832 (published as US 2006/0046048) to Kapur et al., should that case be granted, or alternatively whether claims 1, 3, 6-8, 13 and 19 are anticipated by this reference under 35 USC § 102(e).

2) Whether claims 1, 3, 6-8, 13 and 19 constitute obviousness-type double patenting over claims 1-15 over US 6,723,398 to Chum et al., or alternatively whether claims 1, 3, 6-8, 13 and 19 are anticipated by this reference under 35 USC § 102(e).

3) Whether claims 1, 3, 6-8, 13 and 19 are anticipated by US 5,360,648 to Falla et al.

VII. ARGUMENT

As explained at page 2, lines 6-17 of the present specification U.S. Application Number 10/560,323 (all page and line numbers herein refer to said application), and as recited in claim 1, the present invention requires at least 10 percent of a particular homogeneously branched polyethylene and at least 5 percent of a heterogeneously branched polyethylene, and additionally requires that the melt index for the overall polymer composition is lower than the melt index for the homogeneously branched component.

The applicants have discovered that this combination results in a material having improved properties not previously known. The comparison in Table 3 (page 17) between Example 1 and comparative Example 2 demonstrates these improved properties which results from using the materials of the present invention. The blends of Example 1 and Comparative Example 2 are similar with the notable exception that in Example 1, the overall melt index will be lower than the homogeneously branched portion whereas in Comparative Example 2, the overall blend will have a melt index which is higher than the homogeneously branched portion. Looking at the properties of these materials in the second portion of table 3 (page 18), it can clearly be seen that Example 1 has better (i.e. .lower) haze values and higher Elmendorf tear strength, as well as other improved properties.

As will be discussed more completely below, the art cited by the Examiner in this case fails to teach the specific combination of elements recited in claim 1, nor do the references suggest any reason for selecting parameters to arrive at the specific combination. Furthermore the Examiner has provided no other reference which would lead a person of ordinary skill in the art to make the specific combination of elements now claimed.

A. US 2006/0046048 to Kapur et al.

The first reference relied on by the Examiner is US 2006/0046048 to Kapur et al. (hereinafter referred to as "Kapur"). This reference is used both for a provisional obviousness-type double patenting reference as well as an anticipation reference under 35 USC 102(e) for all of the claims under appeal (1, 3, 6-8, 13 and 19). Kapur is admittedly very close prior art to the

present invention but Kapur is completely silent as to claim 1's recitation that the components must be selected such that the overall melt index of the blend is less than the melt index of the homogeneously branched portion. Furthermore, the example in Kapur (paragraph [0117]), uses a homogeneously branched component having a melt index of 1 g/10 min together with a heterogeneously branched component with a melt index of 2.5 g/10 min. Thus it cannot be argued that this material would have inherently met the claims of the present invention.

As each of the claims on appeal depends from Claim 1, each of the claims on appeal also contains the recitation as to the overall melt index being lower than the melt index of the homogeneously branched component. Therefore, since Kapur does not mention this limitation at all, and does not inherently disclose such limitation, Kapur cannot support an anticipation rejection under 35 USC § 102(e) of any of claims 1, 3, 6-8, 13 and 19.

Kapur is also used by the Examiner to support an obviousness-type double patenting rejection of all of the claims on appeal. Kapur's emphasis is on the importance of requiring the homogeneously branched portion to have a lower density than the heterogeneously branched portion. It should be noted that Comparative Example 2 (see Table 3 beginning on page 17) of the present application meets this limitation and thus would fall within the teachings of Kapur, but as this example does not meet the melt index limitation, it would not fall within the scope of the claims on appeal. Thus, the improved properties present in the second half of Table 3 (page 18) appear to be attributable to the recitation that the overall melt index is lower than the melt index of the homogeneously branched component. This recitation is part of each of the claims on appeal.

The Examiner has supported the obviousness type rejection stating that the claims of Kapur may "embrace" a blend as claimed. Applicants do not contest this point. However, the inventors of the patent application under appeal have discovered a narrow subset within the broader range taught by Kapur, which gives improved properties, such as the lower haze and higher Elmendorf Tear values set forth in Table 3 of the present application. Selection of a narrower range of a broadly described class of materials, coupled with unexpected improvements is patentable. See, *In re Woodruff* 919F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). This is particularly true when the particular variable being controlled (the melt index of

the various components) has not been previously recognized as effecting the results (e.g. haze and tear strength). See, *In re Antoine*, 559 F.2d 618, 195 USPQ 6 (CCPA1977).

Accordingly even though the film layer set forth in the present claims may fall within (or be embraced by) the broad description of materials taught by Kapur, Kapur does not teach the specific subset, and there would be no incentive for a person of ordinary skill in the art to make such a selection, nor would such a person expect the improved results presented. Thus Kapur does not adequately support an obviousness rejection of any sort, including a provisional obviousness-type double patenting rejection any of claims 1, 3, 6-8, 13 and 19.

B. US 6,723,398 to Chum et al.

The second reference relied on by the Examiner is US 6,723,398 to Chum et al. (hereinafter referred to as "Chum"). This reference is used both for a provisional obviousness-type double patenting reference as well as an anticipation reference under 35 USC 102(e) for all of the claims under appeal (1, 3, 6-8, 13 and 19).

Chum recites a polymer blend in which one component is a homogeneously branched ethylene interpolymer and the other polymer may be a homogeneously branched ethylene interpolymer or a heterogeneously branched interpolymer. Chum does not require either component to be present in at least 10 percent as required by the claims. More importantly, like Kapur, Chum also fails to provide any motivation to select heterogeneously branched components such that the overall blend has a melt index lower than the homogeneously branched component.

As each of the claims on appeal depends from Claim 1, each of the claims on appeal also contains the recitation as to the overall melt index being lower than the melt index of the homogeneously branched component. Therefore, since Chum does not mention this limitation at all, Chum cannot support an anticipation rejection under 35 USC § 102(e) of any of claims 1, 3, 6-8, 13 and 19.

Chum is also used by the Examiner to support an obviousness-type double patenting rejection of all of the claims on appeal. The Examiner has not provided any evidence to support the notion that a person of ordinary skill in the art would seek to modify Chum to

arrive at the invention set for on the claims on appeal. There is no indication in any of the art cited that properties such as haze or tear strength can be effected by having the relative melt strength of the heterogeneously branched component be lower than the homogeneously branched component. In fact, Chum specifically teaches away from this, when it states that "the first interpolymer is a homogeneously branched ethylene interpolymer having an $I_2$ melt index *equal to or lower* than that of the second interpolymer which would be a heterogeneously branched ethylene interpolymer" (column 8, lines 21-25) (emphasis added).

The Examiner has supported the obviousness type rejection stating that the claims of Chum may "embrace" a blend as claimed. Applicants do not contest this point. However, the inventors of the patent application under appeal have discovered a narrow subset within the larger set taught by Chum, which gives improved properties, such as the lower haze and higher Elmendorf Tear values set forth in Table 3 of the present application. Selection of a narrower range of a broadly described class of materials, coupled with unexpected improvements is patentable. See, *In re Woodruff* 919F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). This is particularly true when the particular variable being controlled (the melt index of the various components) has not been previously recognized as effecting the results (e.g. haze and tear strength). See, *In re Antoine*, 559 F.2d 618, 195 USPQ 6 (CCPA1977).

Accordingly, even though the film layer set forth in the present claims may fall within (or be embraced by) the broad description of materials taught by Chum, Chum does not teach the specific subset, and there would be no incentive for a person of ordinary skill in the art to make such a selection, nor would such a person expect the improved results presented. Thus Chum does not adequately support an obviousness rejection of any sort, including a provisional obviousness-type double patenting rejection of any of claims 1, 3, 6-8, 13 and 19.

C. US 5,360,648 to Falla et al.

The third reference relied on by the Examiner is US 5,360,648 to Falla et al. (hereinafter referred to as "Falla"). This reference is used to support an anticipation reference under 35 USC 102 (b) for all of the claims under appeal (1, 3, 6-8, 13 and 19). Falla teaches films comprising homogeneously branched ethylene copolymer which may optionally be blended with other materials including heterogeneously branched polyethylene (column 10, lines

26-40). There is no indication however that the materials should be selected such that the overall composition has a melt index lower than the melt index of the homogeneously branched component. The only teachings concerning melt index appear to be that the homogeneously branched component has a melt index less than 10 g/10 min, preferably in the range of from 0.01 to 10 g/10 min (column 6, lines 38-43), and the heterogeneously branched component (if present) is also in the same range of 0.01 to 10 g/10 min (column 10, lines 17-18). Thus, while blends recited in the present claim 1 may fall within the broad teachings of Falla, Falla does not teach the specific subset of material recited.

As each of the claims on appeal depends from Claim 1, each of the claims on appeal also contains the recitation as to the overall melt index being lower than the melt index of the homogeneously branched component. Therefore, since Falla does not mention this limitation at all, Falla cannot support an anticipation rejection under 35 USC § 102(b) of any of claims 1, 3, 6-8, 13 and 19.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

IX. EVIDENCE

None

X. RELATED PROCEEDINGS

None

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Respectfully submitted,

By /James T. Hoppe/

James T. Hoppe
Registration No.: 35,899
THE DOW CHEMICAL CO.
P.O. Box 1967
Midland, Michigan 48641-1967
(979) 238-9039

## APPENDIX A

**Claims Involved in the Appeal of Application Serial No.** 10/560,323

1. A film layer made from a polymer composition, wherein, the composition comprises

(A) from 10 percent (by weight of the total composition) to 95 percent (by weight of the total composition) of at least one homogeneously branched ethylene/alpha-olefin interpolymer having:

(i) a density from 0.86 grams/cubic centimeter ($g/cm^3$) to 0.92 $g/cm^3$,

(ii) a molecular weight distribution (Mw /Mn) from 1.8 to 2.8,

(iii) a melt index ($I_2$) from 0.2 grams/10 minutes (g/10min) to 200 g/10 min,

(iv) substantially no high density fraction; and

(B) from 5 percent (by weight of the total composition) to 90 percent (by weight of the total composition) of at least one heterogeneously branched ethylene polymer having a density from 0.88 $g/cm^3$ to 0.945 $g/cm^3$;

wherein, the polymer composition has a melt index from 0.5 grams/10 minutes to 30 grams/10 minutes and which is lower than the melt index of component (A).

3. The film layer of claim 1 having a heat seal initiation temperature of no greater than 105 °C.

6. The film layer of claim 1 wherein the homogeneously branched ethylene/alpha olefin polymer of component (A) is an interpolymer of ethylene with at least one $C_3$-$C_{20}$ alpha-olefin.

7. The film layer of claim 1 wherein the heterogeneously branched ethylene polymer is a copolymer of ethylene and a $C_3$-$C_{20}$ alpha-olefin.

8. The film layer of claim 1 wherein the heterogeneously branched ethylene polymer is a copolymer of ethylene and 1-octene.

13. The film layer of claim 1 wherein (B) has a density higher than the density of the composition.

19. The film of claim 1 wherein the composition comprises more than 40 percent (by weight of the total composition) of Component (A)

## APPENDIX B

**Evidence:**

None

## APPENDIX C

**Related Proceedings:**

None